WHAT IS CLAIMED IS:

1. An organic electroluminescent device comprising:

a) an anode;

b) a hole-transporting layer disposed over the anode;

c) a light-emitting layer disposed over the hole-transporting layer for producing blue light in response to hole-electron recombination, wherein the light emitting layer includes at least one host material and at least one dopant material;

d) a non-hole-blocking buffer layer formed in contact with the light-emitting layer, wherein the non-hole-blocking buffer layer has substantially the same ionization potential and the same electron affinity as those of one of the host materials in the light-emitting layer;

e) an electron-transporting layer disposed over the non-hole-blocking buffer layer; and

f) a cathode disposed over the electron-transporting layer.

2. The organic electroluminescent device of claim 1 wherein the electron energy band gap of the host material in the light-emitting layer is higher than 2.9 eV.

3. The organic electroluminescent device of claim 1 wherein the emission wavelength is shorter than 490 nm.

4. The organic electroluminescent device of claim 1 wherein the electron energy band gap of the non-hole-blocking buffer layer is higher than 2.9 eV.

5. The organic electroluminescent device of claim 1 wherein the thickness range of the light-emitting layer is from 5 nm to 30 nm.

6. The organic electroluminescent device of claim 1 wherein the thickness range of the non-hole-blocking buffer layer is from 5 nm to 30 nm.

7. The organic electroluminescent device of claim 1 wherein the thickness range of the non-hole-blocking buffer layer is from 5 nm to 20 nm.

8. The organic electroluminescent device of claim 1 wherein the host material in the light-emitting layer includes anthracene derivatives.

9. The organic electroluminescent device of claim 8 wherein the anthracene derivatives include 2-(1,1-dimethyethyl)-9,10-bis(2-naphthalenyl) anthracene (TBADN) and 9,10-di-(2-naphthyl) anthracene (ADN).

10. The organic electroluminescent device of claim 1 wherein the non-hole-blocking buffer layer is the same material as one of the host materials in the light-emitting layer.

11. The organic electroluminescent device of claim 1 wherein the non-hole-blocking buffer layer includes a material selected from anthracene derivatives.

12. The organic electroluminescent device of claim 11 wherein the anthracene derivatives include 2-(1,1-dimethyethyl)-9,10-bis(2-naphthalenyl) anthracene (TBADN) and 9,10-di-(2-naphthyl) anthracene (ADN).

13. The organic electroluminescent device of claim 1 wherein the non-hole-blocking buffer layer includes a material selected from blue emitting metal chelated oxinoid compounds.

14. The organic electroluminescent device of claim 13 wherein the blue emitting metal chelated oxinoid compounds include Bis(2-methyl-8-quinolinolato)(4-phenylphenolato)aluminum (B-Alq).